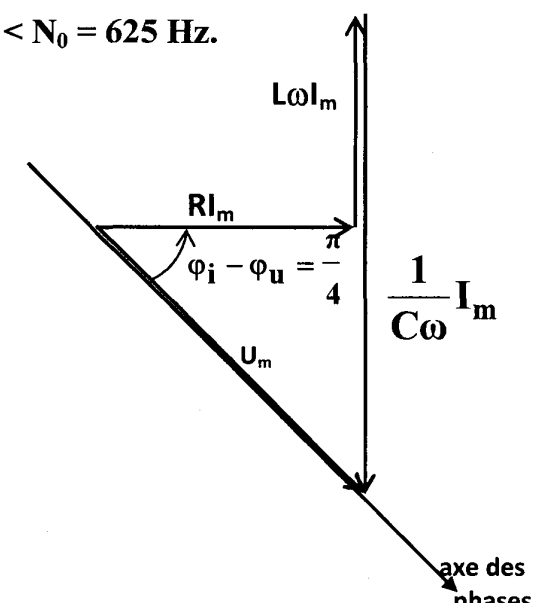
• $L\frac{di}{dt} = L_w I_m \sin(\omega t + \varphi_i + \frac{\pi}{2}) \rightarrow \overrightarrow{v_2} \begin{pmatrix} L\omega I_m \\ \varphi_i + \frac{\pi}{2} \end{pmatrix}$

• $\frac{1}{C}\int i.dt = \frac{I_m}{C\omega} \sin(\omega t + \varphi_i - \frac{\pi}{2}) \rightarrow \overrightarrow{v_3} \begin{pmatrix} \frac{I_m}{C\omega} \\ \varphi_i - \frac{\pi}{2} \end{pmatrix}$

• $u(t) = U_m \sin(\omega t + \varphi_u) \rightarrow \overrightarrow{v_1} + \overrightarrow{v_2} + \overrightarrow{v_3} = \overrightarrow{v} \begin{pmatrix} U_m \\ \varphi_u = 0 \end{pmatrix}$

Construction de Fresnel :

$N_2 = 500\ Hz < N_0 = 625\ Hz.$




4°) $tg\frac{\pi}{4} = \frac{\frac{I_m}{C\omega} - L\omega I_m}{(R+r)I_m} \Rightarrow \frac{\frac{1}{C\omega} - L\omega}{r+R} = 1 \Rightarrow \frac{1}{C\omega} - L\omega = R + r$

Or $\omega_0^2 = \frac{1}{LC}$ et $\omega_0 = 2\pi N_0 = 1250\pi\ rad.s^{-1}$

Alors $\frac{1}{C} = L\omega_0^2$ d'ou $\frac{L\omega_0^2}{\omega} - L\omega = R + r$

$\Rightarrow L(\frac{\omega_0^2 - \omega^2}{\omega^2}) = R + r \Rightarrow L = \frac{(R+r)\omega^2}{(\omega_0^2 - \omega^2)}$

$L = \frac{120.1000.\pi}{(1250\pi 1^2 - (1000.\pi 1^2} = 6{,}7.10^{-2}\ H$

$L = 6{,}7.10^{-2}\ H$

$C = \frac{1}{L\omega_0^2} = \frac{1}{6{,}7.10^{-2}\ X\ (1250\pi)^2} =$

5°) $P = (R + r)\ I^2 = (R + r).\frac{I_m^2}{2}$ $\quad (I_{eff} = \frac{I_m}{\sqrt{2}})$

Or $U_m = R.I_m \Rightarrow I_m = \frac{U_m}{R}$

$I_m = 1{,}75\ x\frac{0{,}2}{100} = 3{,}5.10^{-3}\ A$